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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/531,195	04/13/2005	Jong C. Ye	USO20392	6315
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EXAMINER				
SENFL BEHROOZ M				
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/531,195

Applicant(s)

YE ET AL.

Examiner

BEHROOZ SENFI

Art Unit

2621

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 April 2005.
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1-12, 17-19 and 23-26 is/are rejected.
7) ☒ Claim(s) 13-16 and 20-22 is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☒ The drawing(s) filed on 13 April 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB08)
Paper No(s)/Mail Date 4/13/05
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____

DETAILED ACTION

Specification

1. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o).

Applicant should note that: The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Regarding claim 12, it is noted that, the claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The claimed "multi-directional temporal filters" and "unidirectional temporal filters", was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Claim Rejections - 35 USC § 101

2. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

3. Claims 1-16 and 23-24 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. It is noted that the invention as claimed is directed to "a method of encoding/decoding video, comprising". Such

invention is non-statutory: Because; the invention as claimed is not falling within one of the four statutory categories of invention. Supreme Court precedent and recent Federal Circuit decisions indicate that a statutory "process" under 35 U.S.C. 101 must (1) be tied to another statutory category (such as a particular apparatus), or (2) transform underlying subject matter (such as an article or material) to a different state or thing. While the instant claim(s) recite a series of steps or acts to be performed, the claim(s) neither transform underlying subject matter nor positively tie to another statutory category that accomplishes the claimed method steps, and therefore do not qualify as a statutory process. For example the invention fails to positively tie to another statutory class or structure by the inventive steps of the claim, such as device or apparatus recited within the claims to accomplish the method claimed.

Double Patenting

4. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

5. Claims 1-3, 7, 17-18 and 23-26 of the instant application are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-6 of copending Application No. 10/498,755. Although the conflicting claims are not identical in terms of wording and terminology, their scopes are substantially the same. Claims 1-3, 7, 17-18 and 23-26 of the instant application is broader than the claims 1-6 of copending Application No. 10/498,755. It is noted that, claim 1 of copending Application No. 10/498,755 encompass claim 1 of the instant application. For instance, claim 1 of the copending application 10/498,755 recites "an encoding method for the compression of a video" thus encompass "a method of encoding video" as recited in claim 1 of the instant application; including "a video sequence, in claim 1 of the copending application 10/498,755" encompass "providing a video signal, recited in claim 1 of the instant application", and "spatial decomposition step, in claim 1 of the copending application 10/498,755" encompass "spatially decomposing the video signal into at least two signals of different frequency sub-bands, recited in claim 1 of the instant application", and "a motion compensation step and temporal filtering step, in claim 1 of the copending application 10/498,755" encompasses "applying an individualized motion compensated temporal filtering scheme to each sub-band signal, recited in claim 1 of the instant application", and "the coded texture information, in claim 1 of the copending application 10/498,755" encompasses "texture coding each of the motion compensated temporally filtered sub-

band signals, recited in claim 1 of the instant application". By comparing the limitations as recited in claim 1 of the instant application with corresponding claim 1 of the copending application 10/498,755; it is noted that, claim 1 of the copending application 10/498,755 encompasses the limitations recited in claim 1 of the instant application, and claim 1 of the instant application is broader than claim 1 of the copending application 10/498,755.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

In regards to claims 2-3, 7, 17-18 and 23-26 of the instant application are similarly encompassed by claims 1-2 and 4-6 of the copending application 10/498,755.

6. Claims 1-3, 9, 17-18 and 23-26 of the instant application are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 8-15 of copending Application No. 10/573,085. Although the conflicting claims are not identical in terms of wording and terminology, their scopes are substantially the same. Claims 1-3, 9, 17-18 and 23-26 of the instant application is broader than the claims 8-15 of copending Application No. 10/573,085. It is noted that, claim 8 of copending Application No. 10/573,085 encompasses claim 1 of the instant application. For instance, claim 8 of the copending application 10/573,085 recites "a video encoder, comprising" thus encompass "a method of encoding video" as recited in claim 1 of the instant application; including "receiving video frames from a source, in claim 8 of the copending application 10/573,085" thus encompass "providing a video signal, recited in claim 1 of the instant application", and "transforming the frames from a

spatial domain to a wavelet domain, in claim 8 of the copending application 10/573,085" encompass "spatially decomposing the video signal into at least two signals of different frequency sub-bands, recited in claim 1 of the instant application" and "motion compensation temporal filters, in claim 8 of the copending application 10/573,085, encompass "applying an individualized motion compensated temporal filtering scheme to each sub-band signal, recited in claim 1 of the instant application"; and "means for texture coding, in claim 8 of the copending application 10/573,085" encompass "texture coding each of the motion compensated temporally filtered sub-band signals, recited in claim 1 of the instant application". By comparing the limitations as recited in claim 1 of the instant application with corresponding claim 8 of the copending application 10/573,085; it is noted that, claim 8 of the copending application 10/498,755 encompasses the limitations recited in claim 1 of the instant application, and claim 1 of the instant application is broader than claim 8 of the copending application 10/573,085.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

In regards to claims 2-3, 9, 17-18 and 23-26 of the instant application are similarly encompasses by claims 8-15 of copending Application No. 10/573,085.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claims 1-8, 10, 17-19 and 23-26 are rejected under 35 U.S.C. 102(b) as being anticipated by Smith et al. (US 5,974,186).

Regarding claim 1, Smith discloses, a method of encoding video (i.e., fig. 1, video coding system 10), the method comprising the steps of, providing a video signal (i.e., fig. 1, input video signal into video coding system 10, as shown in the figure), spatially decomposing the video signal into at least two signals of different frequency sub-bands (figs. 1-2, col. 2, lines 18-50, cols. 3-4, lines 65-10), applying an individualized motion compensated temporal filtering scheme to each sub-band signal (i.e., figs. 1-2, col. 7, lines 27-35 and col. 9, lines 1-7), and texture coding each of the motion compensated temporally filtered sub-band signals (i.e., fig. 1, texture coding 23).

Regarding claim 2, Smith discloses, the method according to claim 1, wherein the spatially decomposing step is performed by wavelet filtering (figs. 1-2, subband analysis 51 and filters shown in fig. 2).

Regarding claim 3, Smith discloses, the method according to claim 1, wherein the video signal defines a plurality of frames, the spatially decomposing step including spatially decomposing each of the frames of the video signal into the at least two signals of different frequency sub-bands (i.e., fig. 1, spatial decimation, cols. 3-4, lines 65-25).

Regarding claim 4, Smith discloses, the method according to claim 1, wherein prior to the step of applying a motion compensated temporal filtering scheme, further comprising the step of breaking each of the sub-band signals into a signal representing

a group of temporal frames having a certain content (i.e., fig. 1, temporal decimation 21).

Regarding claim 5, Smith discloses, the method according to claim 4, wherein the individualized motion compensated temporal filtering scheme applied to each sub-band signal is individualized according to the content of the group of frames (i.e., col. 7, lines 27-50).

Regarding claim 6, Smith discloses, the method according to claim 1, wherein prior to the step of applying a motion compensated temporal filtering scheme, further comprising the step of breaking each of the sub-band signals into a signal representing a group of frames, the number of the frames in at least one of the group of frames signals being adaptively determined (i.e., col. 2, lines 38-48).

Regarding claim 7, Smith discloses, the method according to claim 1, wherein the individualized motion compensated temporal filtering scheme applied to each sub-band signal is individualized according to a spatial resolution of the sub-band signal (i.e., col. lines 27-50).

Regarding claim 8, Smith discloses, the method according to claim 1, wherein the step of applying an individualized motion compensated temporal filtering scheme to each sub-band signal is performed by using variable accuracy motion estimation, which is dependent of signal contents (i.e., col. 7, lines 31-35).

Regarding claim 10, Smith discloses, the method according to claim 1, wherein the step of applying an individualized motion compensated temporal filtering scheme to each sub-band signal is performed by using an individualized interpolation filter for

maximizing motion estimation performance (i.e., col. 2, lines 63-col. 3, lines 3 and col. 7, lines 27-50, reinterjection of the motion vector component and scaling up by interpolation to represent motion, consider as maximizing motion estimation).

Regarding claims 17-18, the limitations claimed are substantially similar to claim 1 above, therefore the ground for rejecting claim 1 also applies here.

Regarding claim 19, the limitations claimed are substantially similar to claim 4 above; therefore the ground for rejecting claim 4 also applies here.

Regarding claims 23-26, the limitations claimed are substantially similar to claims 1 and 17-18 above, and are the decoding method, of the encoding method claims 1 and 17-18, therefore the ground for rejecting claims 1 and 17-18 also applies here. As for the additional limitations "decoding process" please see, col. 8, lines 25- col. 9, lines 7 of Smith reference.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 9 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Smith et al. (US 5,974,186) in view of Tong et al. (US 5,808,683).

Regarding claim 9, Smith discloses, the method according to claim 1, wherein the individualized motion compensated temporal filtering scheme applied to each sub-band signal, as covered in the above action.

Smith is silent to explicitly mention, according to a temporal correlation of the sub-band signal.

Tong (i.e., figs. 1-2, cols. 3-4, lines 51-44) teaches temporal correlation of the sub-band signal being considered in sub-band coding/decoding of the video.

In view of the above, it would have been obvious to one having ordinary skill in the art at the time of the invention to combine the teaching of Smith and Tong, as a whole, in order to reduce number of bits required for encoding without deteriorating the encoded picture quality, suggested by Tong (i.e., col. 2, lines 55-57).

Regarding claim 11, the combination of Smith and Tong teaches, the method according to claim 1, wherein the individualized motion compensated temporal filtering scheme applied to each sub-band signal is individualized according to a characteristic of the sub-band signal (the filtering process, low-pass and high-pass in Tong is based on the characteristic, e.g., correlation, of the sub-band).

11. Claims 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Smith et al. (US 5,974,186) in view of Florent et al. (US 6,430,318).

Regarding claim 12, Although Smith disclosure includes filtering process in horizontal and vertical directions (i.e., figs. 1-2).

Smith is silent to explicitly mention, multi-directional temporal filters and unidirectional temporal filters.

Florent (i.e., col. 1, lines 44-52) teaches the use of multi-directional temporal filters and unidirectional temporal filters, to preserve a feature having substantially identical levels.

In view of the above, it would have been obvious to one having ordinary skill in the art at the time of the invention to combine the teaching of Smith and Florent, as a whole, in order to preserve a feature having substantially identical levels, as suggested by Florent (i.e., col. 1, lines 38-41).

Allowable Subject Matter

12. Claims 13-16 and 20-22 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Contact

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Behrooz Senfi whose telephone number is 571-272-7339. The examiner can normally be reached on M-F 7:00-3:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mehrdad Dastouri can be reached on 571-272-7418. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Behrooz Senfi/
Primary Examiner
Art Unit 2621